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U.S. Coast Guard

Appointment of cadets and cadet engineers

Washington

1923

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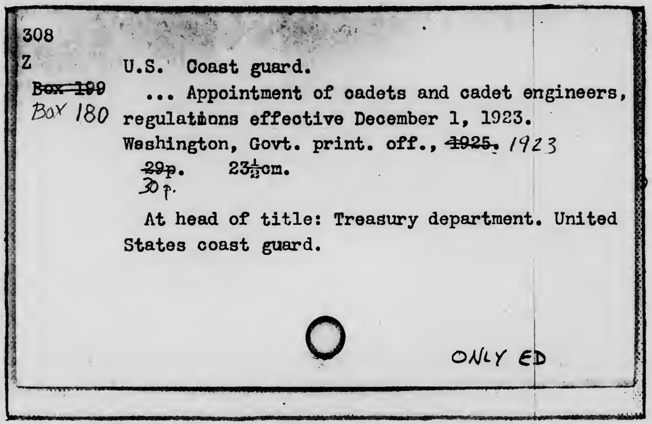

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TREASURY DEPARTMENT
UNITED STATES COAST GUARD

Appointment of Cadets and Cadet Engineers

Box

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Regulations Effective December 1, 1923

WASHINGTON
GOVERNMENT PRINTING OFFICE
1923

TREASURY DEPARTMENT
UNITED STATES COAST GUARD

Appointment of Cadets and Cadet Engineers

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Regulations Effective December 1, 1923

WASHINGTON
GOVERNMENT PRINTING OFFICE
1923

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INFORMATION RELATIVE TO APPOINTMENTS TO CADETSHIPS IN THE LINE AND ENGINEER CORPS OF THE UNITED STATES COAST GUARD.

TREASURY DEPARTMENT,
Washington, December 1, 1923.

The following regulations are published to govern appointments to cadetships in the line and in the engineer corps of the United States Coast Guard on and after December 1, 1923.

McKENZIE MOSS,
Assistant Secretary.

By the act of Congress approved January 28, 1915, the Revenue-Cutter Service and the Life-Saving Service were combined into the Coast Guard, and the titles of the former services then became obsolete. All duties previously performed by the Revenue-Cutter Service and the Life-Saving Service are now performed by the Coast Guard. Former revenue cutters and former life-saving stations are now called Coast Guard cutters and Coast Guard stations, respectively. The officers and men of the two services were transferred to corresponding positions in the Coast Guard by the terms of the act.

In time of peace the Coast Guard operates under the Treasury Department. In time of war, or when the President so directs, it operates as a part of the Navy, subject to the orders of the Secretary of the Navy.

All commissioned officers except district superintendents and constructors must enter the Coast Guard as cadets or as cadet engineers. Vacancies in the grade of district superintendent are filled by promotion of warrant officers in charge of stations. Vacancies in the grade of constructor are filled by the appointment of specialists in that line of work.

The law provides for cadets and cadet engineers. The former are called cadets of the line for the purpose of distinguishing them from cadet engineers. Cadets of the line become line officers, who have to do with the navigation of the ships, the handling of guns, the drilling of men, etc., while cadet engineers become engineer officers, whose chief duty is the care and operation of the engines and boilers and their dependencies.

ELIGIBILITY FOR APPOINTMENT.

1. A person to be eligible for appointment as a cadet of the line or cadet engineer must produce satisfactory evidence of good moral character, be not less than 18 nor more than 24 years of age if an applicant for appointment as cadet of the line and not less than 18 nor more than 23 years of age if an applicant for appointment as cadet engineer at the time of appointment, and must pass a satis-

factory physical examination by a board of officers of the Public Health Service and a satisfactory educational examination, which must be written and strictly competitive, by a board of commissioned officers of the Coast Guard. A person is eligible for appointment as cadet of the line on the day he becomes 18 and is ineligible on the day following his twenty-fourth birthday. A person is eligible for appointment as cadet engineer on the day he becomes 18 and is ineligible on the day following his twenty-third birthday.

2. No person who has been dismissed or compelled to resign from the Military Academy or from the Naval Academy of the United States for hazing, or for any other improper conduct, is eligible for appointment as a cadet or cadet engineer in the Coast Guard.

3. Before being appointed a cadet of the line or a cadet engineer the candidate will be required to obligate himself to serve at least three years as an officer in the service after graduation, if his services be so long required.

4. Applications for permission to take the examination should be sent to the Commandant of the Coast Guard on the prescribed form, which will be sent on request. The application must contain satisfactory evidence that the candidate is a male citizen of the United States, that he is unmarried, and that he will be within the age limits at the time the appointments are to be made, and must be accompanied both by testimonials sufficient to constitute satisfactory evidence of the good moral character of the applicant and by certificates covering his previous scholastic or practical work, as prescribed in section 10 of this publication. The application shall state whether appointment as cadet of the line or cadet engineer is desired.

5. (1) Examinations will be held annually, or more often if necessary, in the city of Washington, and in a number of other cities in different sections of the country, depending upon the location of the various candidates. Candidates for appointment as cadet of the line and cadet engineer will be given the same examination.

(2) Candidates will be informed of the date of the next examination as soon as such date is fixed.

(3) If the application, testimonials, and certificates submitted by a candidate are deemed satisfactory, he will be designated to be examined at such one of the places as may be most convenient to his place of residence.

6. No expenses are allowed candidates who are permitted to appear for examination. Having been appointed, and having taken the oath of office, cadets will be reimbursed for the actual mileage from their homes to the academy, or to the practice ship.

PHYSICAL EXAMINATION.

7. The physical examination will be conducted by a board of officers of the Public Health Service, and will be thorough and rigid. It will, whenever practicable, precede the educational examination.

Candidates must be physically sound, well formed, and of robust constitution; no material physical defect will be waived in any case or for any reason.

8. Any one of the following conditions will be sufficient to cause the rejection of a candidate:

(*a*) Feeble constitution, inherited or acquired.

(*b*) Retarded development.

(*c*) Impaired general health.

(*d*) Decided cachexia, diathesis, or predisposition; anemia, from malaria or from intestinal parasites, as hookworm.

(*e*) Weak or disordered intellect.

(*f*) Cutaneous or communicable disease.

(*g*) Unnatural curvature of the spine, torticollis, or other deformity.

(*h*) Inefficiency of either of the extremities or large articulations from any cause.

(*i*) Epilepsy or other convulsions within five years.

(*j*) Impaired vision, disease of the organs of vision, imperfect color sense; visual acuteness must be normal, i. e., 20/20 for each eye without the aid of glasses. There shall be no deviation from this standard.

(*k*) Impaired hearing or disease of either ear. The organs of hearing, both the conductive apparatus (outer and middle ear) and the percipient apparatus (internal ear), must be free from disease. In testing the hearing of the candidate the voice, the ticking of a watch, and, if practicable, Politzer's acoumeter should be employed.

The voice is a more reliable method of determining the acuteness of hearing than the ticking of an ordinary watch, as it allows for variations in hearing, with the modifications produced by changes in pitch and tone. Hearing in each ear must be normally acute to the spoken and whispered voice. In examining the acuteness of the hearing with the voice one ear of the candidate should be closed while the other ear is being examined, and his eyes should be covered to prevent lip reading. The ticking of an ordinary watch should be heard at a distance of 40 inches.

(*l*) Chronic nasal catarrh, ozæna, polypi, or great enlargement of the tonsils.

(*m*) Impediment of speech to such an extent as to impair efficiency in the performance of duty.

(*n*) Disease of heart or lungs, or decided indications of liability to cardiac or pulmonary affections.

(*o*) Hernia, complete or incomplete, or undescended testis.

(*p*) Varicocele, sarcocele, hydrocele, stricture, fistula, hemorrhoids, or varicose veins of lower limbs.

(*q*) Phimosis or disease of the genito-urinary organs.

(*r*) Ingrowing nails, bunions, cross or hammer toes, flat feet, or other deformity of feet.

(*s*) Loss of many teeth, or teeth generally unsound. Marked overbite or lack of occlusion of jaws. There should be at least eight opposing molars, two on each side in each jaw. All defective teeth should have permanent fillings.

9. Attention will also be paid to the stature of the candidate, and no one manifestly under size for his age will be appointed. The height must be not less than 5 feet 4 inches stripped, and any marked deviation from the usual standard of weight will add materially to the consideration for rejection. No one found physically disqualified will be examined further.

CERTIFICATES.

10. A candidate must submit one of the following:

(*a*) A properly attested certificate (Form 9539) that the candidate is a regularly enrolled student in good standing without condition in a university, college, or technical school accredited by Coast Guard Headquarters, provided that the entrance requirements of the course he is pursuing require proficiency in subjects amounting to not less than 14 units of the list given in paragraph (*f*) of this section. If attendance at college extends over a semester, a full record of academic work at the college, giving subjects taken and grades attained in each, must accompany the certificate; if attendance at college extends over less than a semester and the candidate was admitted to college by certificate, a certificate (Form 9539A) from the preparatory school giving a full record of studies taken and grades attained must accompany the college certificate.

(*b*) A properly attested certificate (Form 9539A) that the candidate has graduated from a preparatory school or public high school accredited by Coast Guard Headquarters, provided that he has in his school work shown proficiency in subjects amounting to not less than 14 units of the list given in paragraph (*f*) of this section.

(*c*) A properly attested certificate (Form 9539A) that the candidate is in actual attendance in his senior year at a preparatory school or public high school accredited by Coast Guard Headquarters, and has satisfactorily completed three and one-half years' work at such a school, provided that the course which he is pursuing will, when completed, show proficiency in subjects amounting to not less than 14 units of the list given in paragraph (*f*) of this section. A candidate submitting a certificate showing actual attendance at and prospective graduation from a preparatory school or public high school must as a condition of admission continue his course of study, and at the time of entrance to the Coast Guard Academy submit his diploma or other formal evidence of graduation. Failure to submit such evidence of graduation will disqualify the candidate for entrance.

(*d*) A properly attested certificate (Form 9539B) from the College Entrance Examination Board that the candidate has shown proficiency in the examinations set by the board in subjects amounting to 14 units of the list given in paragraph (*f*) of this section.

(*e*) A candidate who is unable to submit one of the above-named certificates may submit properly attested certificates showing his proficiency in any of the subjects from the list given below, together with a statement of the occupations or pursuits in which he has been engaged, attested by his present or former superior officers or employers. If it appear that a candidate under this section has had sufficient education to warrant his being designated for the competitive examination, he will be so designated, but he will be required to pass, in addition to the competitive examination, qualifying examinations in one of the four languages—French, Spanish, German, or Latin; in one of the three sciences—physics, chemistry, or general science; and in general information (see section 14). The passing mark in each of these subjects shall be 65 per cent, and deficiency in any one may be sufficient to cause the rejection of the candidate.

(*f*) The list of subjects and the corresponding weight in units of each, which may be presented for credits, is as follows:

1. REQUIRED.

Mathematics, A1	1	History, A	any two	2
Mathematics, A2	1	History, B		
Mathematics, C	1	History, C		
English, A	1½	History, D		
English, B	1½	History, E		
		History, F		

Total, 8.

2. OPTIONAL.

The remaining six units may be supplied from among the following, and no others:

Mathematics, B		½	French, A, Elementary		2
Mathematics, D		½	French, B, Intermediate	either one but not both.	1
Mathematics, E		½	French, BC, Intermediate and advanced		2
Mathematics, F		½			
History, A	any not submitted among required subjects.	1	German, A, Elementary		2
History, B		1	German, B, Intermediate	either one but not both.	1
History, C		1	German, BC, Intermediate and advanced.		2
History, D		1			
History, E		1	Spanish		2
History, F		1	Physics		1
*Latin, 1, Grammar		1	Chemistry		1
Latin, 2, Elementary composition		1	Biology		1
Latin, 3, Second year		2	Botany		1
Latin, 4, Cicero		1	Physical geography		1
Latin, 5, Virgil		1	Drawing (freehand and mechanical)		1
Greek, A1, Grammar		½	Zoology		1
Greek, A2, Elementary composition		½	General science		1

* Only 4 units will be credited for Latin studies.

11. The department reserves the right to reject the certificate of any candidate whose assigned grades create doubt as to his ability to pursue the course at the Coast Guard Academy successfully.

DEFINITION OF CERTAIN OF THE SUBJECTS LISTED.

12. (1) The definition of unit and of the ground covered by the designated subjects is that of the College Entrance Examination Board (Document No. 101, College Entrance Examination Board, 431 West 117th Street, New York City). Greater credit than indicated will not be allowed; less credit will be understood as evidence that the entire subject has not been completed.

(2) A unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A four-year secondary school curriculum should be regarded as representing not more than 16 units of work. This statement is designed to afford a standard of measurement for the work done in secondary schools. It takes the four-year high-school course as a basis, and assumes that the length of the school year is from 36 to 40 weeks, that a period is from 40 to 60 minutes in length, and that the study is pursued for four or five periods a week; but under ordinary circumstances a satisfactory year's work in any subject can not be accomplished in less than 120 sixty-minute hours or their equivalent. Schools organized on any other than a four-year basis can, nevertheless, estimate their work in terms of this unit. (From Document No. 93, College Entrance Examination Board. Address for further information, 431 West 117th Street, New York City.)

SCOPE OF STUDIES FOR WHICH CREDITS WILL BE ACCEPTED.

(3) Mathematics.

A1. ALGEBRA TO QUADRATICS. ONE UNIT.

The four fundamental operations for rational algebraic expressions.

Factoring, determination of highest common factor and lowest common multiple by factoring.

Fractions, including complex fractions and ratio and proportion.

Linear equations, both numerical and literal, containing one or more unknown quantities.

Problems depending on linear equations.

Radicals, including the extraction of the square root of polynomials and of numbers.

Exponents, including the fractional and negative.

A2. QUADRATICS AND BEYOND. ONE UNIT.

Quadratic equations, both numerical and literal.

Simple cases of equations, with one or more unknown quantities that can be solved by the methods of linear or quadratic equations.

Problems depending on quadratic equations.

The binomial theorem for positive integral exponents.

The formulas for the *nth* term and the sum of the terms of arithmetical and geometrical progressions, with applications.

It is assumed that pupils will be required throughout the course to solve numerous problems which involve putting questions into equations. Some of these problems should be chosen from mensuration, from physics, and from commercial life. The use of graphical methods and illustrations, particularly in connection with the solution of equations, is also expected.

B. ADVANCED ALGEBRA. ONE-HALF UNIT.

Permutations and combinations, limited to simple cases.

Complex numbers, with graphical representation of sums and differences.

Determinants, chiefly of the second, third, and fourth orders, including the use of minors and the solution of linear equations.

Numerical equations of higher degree, and so much of the theory of equations, with graphical methods, as is necessary for their treatment, including Descartes' rule of signs and Horner's method, but not Sturm's functions or multiple roots.

C. PLANE GEOMETRY. ONE UNIT.

The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of lines and plane surfaces.

D. SOLID GEOMETRY. ONE-HALF UNIT.

The usual theorems and constructions of good textbooks, including the relation of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of surfaces and solids.

E. TRIGONOMETRY. ONE-HALF UNIT.

Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles.

Proofs of principal formulas, in particular for the sine, cosine, and tangent of the sum and the difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas.

Solution of trigonometric equations of a simple character.

Theory and use of logarithms (without the introduction of work involving infinite series).

The solution of right and oblique triangles and practical applications, including the solution of right spherical triangles.

F. PLANE TRIGONOMETRY. ONE-HALF UNIT.

This subject is the same as the preceding except that no topics from spherical trigonometry are included.

(4) English A and B.

The study of English in school has two main objects: (*a*) Command of correct and clear English, spoken and written; (*b*) ability to read with accuracy, intelligence, and appreciation.

GRAMMAR AND COMPOSITION. ONE AND ONE-HALF UNITS.

The first object requires instruction in grammar and composition. English grammar should ordinarily be reviewed in the secondary school; and correct spelling and grammatical accuracy should be rigorously exacted in connection with all written work during the four years. The principles of English composition governing punctuation, the use of words, sentences, and paragraphs should be thoroughly mastered; and practice in composition, oral as well as written, should extend throughout the secondary school period. Written exercises may well comprise letter-writing, narration, description, and easy exposition and argument. It is advisable that subjects for this work be taken from the student's personal experience, general knowledge and studies other than English, as well as from his reading in literature. Finally, special instruction in language and composition should be accompanied by concerted effort of teachers in all branches to cultivate in the student the habit of using good English in his recitations and various exercises, whether oral or written.

LITERATURE. ONE AND ONE-HALF UNITS.

The second object is sought by means of two lists of books headed, respectively, reading and study, from which may be framed a progressive course in literature covering four years. In connection with both lists, the student should be trained in reading aloud and be encouraged to commit to memory some of the more notable passages both in verse and in prose. As an aid to literary appreciation, he is further advised to acquaint himself with the most important facts in the lives of the authors whose works he reads and with their place in literary history.

Reading.

The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads.

(5) History.

a. Ancient history, with special reference to Greek and Roman history, and including also a short introductory study of the more ancient nations and the chief events of the early Middle Ages, down to the death of Charlemagne (814), one unit.

b. Mediaeval and modern history, from the death of Charlemagne to the present time, one unit.

c. Modern history, one unit.

d. English history, one unit.

e. American history, one unit.

f. American history and civil government, one unit.

QUALIFYING EXAMINATION.

(Not required of applicants who present certificates showing 14 credits as prescribed by section 10.)

13. The scope of the qualifying examination will be as follows:

(1) Elementary Latin.

Candidates must have a knowledge of the following:

Nouns—the five declensions; the various constructions with the nominative, genitive, dative, accusative, and ablative.

Adjectives—first and second declension adjectives; third declension adjectives; adjectives with genitive in *ius;* comparison; possessives; demonstratives; interrogatives.

Adverbs—formation; comparison.

Pronouns—personal; relative; reflexive; intensive; interrogative; demonstrative; indefinite.

Verbs—the four conjugations; the deponents; the more common irregular verbs, i. e., *esse, posse, ire;* the periphrastic; participles; gerund; gerundive; supine.

Subjunctive—in independent clauses; with *ut, ne,* relative clauses of purpose and *cum* clauses; in conditional sentences.

Translation of easy Latin into English and of English into Latin.

An answer approved by any Latin book of good repute will be accepted.

(2) Elementary French.

Candidates must exhibit a good knowledge of the rudiments of French grammar, including the conjugation of regular verbs and of common irregular verbs; the use of the past participle; the common uses of the subjunctive; the sequence of tenses; the forms and uses of pronouns and adjectives; the uses of the common verbs, prepositions, conjunctions, and adverbs; easy translations from English into French and from French into English of expressions used in everyday life.

The required ground is covered completely by Fraser and Squair's French Grammar, Part I, or any other well-known textbook.

(3) Elementary Spanish.

Candidates must have a knowledge of the following: Rules for accentuation, syllabication, and orthographic changes; rudiments of grammar, including the inflexion of regular verbs in the three conjugations and the more common irregular verbs; the use of adjectives and participles; use of personal pronouns, common adverbs, prepositions, and conjunctions; use of negatives; use of different forms of the passive voice; the order of words in the sentence, and the elementary rules of syntax in the use of the conditional, subjunctive, and imperative; translation of easy sentences from English into Spanish and from Spanish into English; use of common idiomatic expressions, and peculiar use of certain verbs, as *ser* and *estar*.

The required ground is covered completely by Hills and Ford's First Spanish Course, or any other well-known textbook.

(4) Elementary German.

Candidates must have a knowledge of the following: Rudiments of grammar, including the inflection of articles, of such nouns as belong to the language of everyday life, adjectives, pronouns, weak verbs, and the more usual strong verbs; also the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word-order; the translation from English into German and from German into English of sentences taken from language of everyday life.

(5) Physics.

The candidate will be required to show a thorough knowledge of the fundamental principles of physics and to be able to apply this knowledge in the solution of simple problems. Questions may be asked on the following: Metric system; density; specific gravity; moments; Newton's laws of motion; acceleration; gravity; and magnetism, together with simple questions on heat and light. Reference textbooks: Practical Physics by Millikan and Gale, College Physics by Reed and Guthe, or any other standard book.

(6) Chemistry.

The examination will include questions based upon the ground usually covered in one year's study of chemistry in the average high school. The candidate should be familiar with the more common elements and their compounds; with chemical formulas, equations, and solution of simple problems based on chemical reactions. Questions may also be asked upon the atomic theory, the laws of gases, the kinetic theory, the three states of matter, ionization, and other elementary subjects. Reference textbooks: Elementary Study of Chemistry by McPherson and Henderson, Remsen's Chemistry, or any other standard work.

(7) General Science.

The examination will comprise questions on elementary physics, astronomy, chemistry, physiography, and general biology. The candidate will be required to explain such phenomena of nature as the following: The rainbow, evaporation, heat transfer, refraction, an eclipse of the sun, lightning, ocean currents, tides, fertilization of plants, etc., and may be asked to discuss such topics as the solar system, comets, glaciers, the humidity of the atmosphere, storms, composition of the atmosphere, terrestrial magnetism, and the three states of matter.

Since the general science texts used in different localities differ materially in subject content, the questions for this examination will be prepared from the above outline rather than from any specific textbooks.

14. In the qualifying examination in general information questions will relate to well-known matters of general, national, or international interest—briefly, such matters as should be common knowledge of those who, though they may have been unable to complete a course in high school, have formed habits of intelligent reading.

COMPETITIVE EXAMINATION.

15. To be eligible for appointment as cadet or cadet engineer a candidate must attain a mark of at least 65 per cent in each of the three following subjects:

(*a*) English.
(*b*) Mathematics.
(*c*) History.

English Grammar.

Candidates must have a good knowledge of *English grammar;* they must be able to define the terms used therein; to define the parts of speech; to give inflections, including declension, conjugation, and comparison; to give the corresponding masculine and feminine gender nouns; to give and apply the ordinary rules of syntax.

They must be able to parse correctly any ordinary sentence, giving the subject of each verb, the governing word of each objective case, the word for which each pronoun stands or to which it refers, the words between which each preposition shows the relation, precisely what each conjunction and each relative pronoun connects, what each adjective and adverb qualifies or limits, the construction of each infinitive, and generally to show a good knowledge of the function of each word in the sentence.

They must be able to correct in sentences or extracts any ordinary grammatical errors.

It is not required that any particular textbook shall be followed; but the definitions, parsing, and corrections must be in accordance with good usage and common sense.

English Composition and English Literature.

Candidates will be required:

(*a*) By the writing of short themes on subjects chosen by themselves within the limits set by the examination paper, to prove (1) their ability to spell, capitalize, and punctuate, and (2) their mastery of the elementary principles of composition, including paragraphing and sentence structure.

(*b*) To give evidence of intelligent acquaintance with three plays of Shakespeare—one comedy, one history, and one tragedy—*The Merchant of Venice, Henry V, and Macbeth being especially recommended.*

(*c*) To exhibit a fair knowledge of the history of English literature and of the names of the most prominent authors, and of the names of their principal works.

Mathematics.

The scope of the examination in mathematics will be Mathematics A1, A2, and C, as defined in section 12, except that numerical problems on the measurement of areas and volumes of prism, pyramid, cylinder, cone or sphere will be included.

History.

The examination in history will cover any two of the subdivisions of history as listed in section 12, except that the applicant may not choose B and C only, or E and F only.

16. The examination may be expected to take about three days. Each examination is complete in itself. As the examinations are competitive, school certificates, regent's credits, or evidence of having passed examinations for other positions will not be accepted. Each candidate is required to take the examination in all three subjects.

17. In case any candidate is required to take the qualifying examinations they will be given immediately following the completion of the competitive examination.

APPOINTMENT TO CADETSHIP.

18. All papers will be examined and rated by a board of commissioned officers of the Coast Guard. From those candidates who pass the competitive examinations, and, where required, the qualifying examinations, there will be appointed a number of candidates equal to the number of vacancies which the department decides shall be filled. These appointments will be made strictly in the order of merit as shown by the results of the competitive examination, and their general adaptability.

19. In determining the final mark of candidates each subject will be given the weight following:

English	25
Mathematics	25
History	25
General adaptability	25
	100

20. The board will consider the general adaptability of the candidate for the service and mark its opinion thereon on a scale of 100. In determining this mark the board will carefully consider the character, previous scholastic work, evidences of leadership at school or elsewhere, and practical experience of the candidate, as shown by the testimonials, certificates, or record of practical work submitted by him, and also by his bearing and general appearance as reported by the members of the subboard before whom he has appeared. The candidate must attain a mark of at least 65 per cent in general adaptability.

21. After the appointments have been made to fill the number of vacancies which the department decides shall be filled as a result of a particular examination no further appointments will be made from among the candidates of that examination.

22. A candidate who has failed to pass an examination or who has passed an examination and failed of appointment will be permitted to take ensuing examinations, other requirements being fulfilled. Such candidate who has once submitted a satisfactory certificate, or in lieu thereof has passed the qualifying examinations, will not be required to resubmit a certificate or pass again the qualifying examinations. He should, however, in his own interest, submit supplemental certificates covering any scholastic or practical work done since his last examination.

23. The following are given as samples of the qualifying examination:

(1) LATIN. (2 HOURS.)

Translate the following passage, and answer the questions. Read the passage through several times before beginning to write. The translation should be exact, but in clear and natural English.

The inhabitants of Zama refuse admittance to Juba, their king and open negotiations with Caesar.

Iuba cum ante portas diu multumque egisset[1] cum Zamensibus, ubi eos permanere in sententia animadvertit nec precibus[2] suis moveri quo magis se in oppidum reciperent, ab Zama discedit. Zamenses interim legatos de his revus ad Caesarem Uticam mittunt petuntque ab eo ut, priusquam rex manum colligeret seseque oppugnaret, sibi auxilium mitteret; se tamen paratos esse oppidum seque ei reservare.[3] Legatos laudatos Caesar domum iubet antecedere ac suum adventum nuntiare. Ipse postero die Utica egressus cum equitatu in finis regis ire contendit. Interim in itinere ex regiis copiis duces complures ad Caesarem veniunt petuntque ut sibi ignoscat.[4] Quibus petentibus venia[5] data Zamam pervenit. Rumore perlato de eius clementia omnes regis equites Zamam perveniunt ad Caesarem ab eoque sunt timore periculoque liberati.

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[1] *egisset*, from *ago*, "plead."
[2] *precibus*, "entreaties."
[3] *reservare*, from *reservo*, "keep."
[4] *ignoscat*, from *ignosco*, "forgive."
[5] *venia*, "pardon."

1. Tell us in what case each of the following words is, and why this case is used: *eos* (line 1), *Utica* (l. 7), *timore* (l. 12).
2. Tell in what mood each of the following verbs is, and why this mood is used: *animadvertit* (l. 2), *esse* (l. 6), *ignoscat* (l. 10).
3. Tell in what tense each of the following verbs is, and why this tense is used: *moveri* (l. 2), *discedit* (l. 3), *colligeret* (l. 5).
4. Decline throughout: *rebus* (l. 4), *auxilium* (l. 5), *equitatu* (l. 8), *finis* (l. 8). Decline *quibus* (l. 10) in the singular in all genders.
5. Compare *diu* (l. 1), *multum* (l. 1).
6. Conjugate *egisset* (l. 1) in the present subjunctive active; *mitteret* (l. 5) in the perfect subjunctive passive; *egressus* (l. 8) in the present indicative; *perlato* (l. 10) in the future indicative active.
7. Write all the participles of *moveri* (l. 2), and translate each.
8. Translate into Latin:
    (*a*) After being defeated by Caesar's forces, King Juba fled to the city of Zama.
    (*b*) He thought he must carry away with him many things which he had in this city.
    (*c*) The inhabitants of Zama were unwilling to permit his children to go away with him.

(2) FRENCH. (2 HOURS.)

Traduisez en anglais:

a. Tu vois, il y a une famille plus nombreuse que la nôtre qui se compose de sept personnes, une famille comme la nôtre pourtant, où l'on se connaît, où l'on est joyeux quand on est vainqueur, où l'on pleure quand on est vaincu, où l'on est fier quand quelqu'un a fait quelque chose de bien, où l'on est honteux quand il a fait quelque chose de mal. Cette famille habite un pays qui s'étend depuis la mer jusqu'à telle montagne, tel fleuve; si la moindre partie est blessée, tout souffre; c'est partout un seul corps, une seule âme. Cela mon cher Jean, c'est la grande famille, c'est la patrie. Si elle ne te demande pas de la défendre, tu auras toujours à travailler pour elle, à faire de toi un bon ouvrier, un bon citoyen, un Français qui fasse honneur à la France.

b. (*Voir le passage donné ci-dessus.*) Traduisez en français:

(1) We are right to be proud of what our soldiers have done. (2) If our country called us, we ought to defend it. (3) No one shall take away (*enlever*) the slightest part of it. (4) Let us always work for our country and let us be good citizens.

c. Répondez par des phrases complètes aux questions suivantes:

1. Que voit-on à la campagne en été?
2. Auquel de vos amis aimeriez-vous faire visite, et pourquoi?
3. De quoi avez-vous besoin pour écrire une lettre?
4. Si vous ne vous portiez pas bien, qu'est-ce que vous feriez?

d. Dans les phrases suivantes remplacez les tirets par les prépositions ou mots convenables pour compléter le sens:

Il est difficile—écrire le français. Je suis le meilleur élève—la classe, mais je fais toujours beaucoup—fautes,—écrivant mes devoirs. Mon professeur—français qui demeure—Amérique—trois ans va retourner—France cet été—passer deux mois—Paris.

e. Remplacez les infinitifs entre parenthèses par les formes correctes des verbes: (1) Le docteur est occupé en ce moment. En l' (*attendre*), Madame, (*vouloir*) vous asseoir. (2) Je suis certain qu'il (*venir*) demain matin aussitôt qu'il (*pouvoir*). (3) Je suis étonné qu'il (*savoir*) parler français, bien qu'il ne (*être*) en France que depuis six mois. (4) Tout à coup hier soir elle (*se mettre*) à pleurer après (*recevoir*) la lettre. (5) Je vous y (*conduire*), si vous (*craindre*) d'y aller seul.

(3) GERMAN. (2 HOURS.)

a. Translate into English:

1. Fritz war der Sohn eines armen Dorfschusters. Eines Tages musste er aus der kleinen Stadt, die nicht weit vom Dorfe lag, ein Paar Stiefel holen und sah dabei in einem Schaufenster einige wunderschöne, bunte Zinnsoldaten. Fritz hätte gar zu gern auch solche Soldaten gehabt. Sein Vater hatte ihm gesagt, er dürfe die Pfennige behalten, die er für seine Arbeit geschenkt bekäme, und nun sparte er und sparte.

Endlich, als schon fast ein Jahr vorbei war, hatte er eine Mark. Sein Herz klopfte vor Freude und Erwartung. Der Weg zur Stadt führte durch einen dichten Wald; lustig pfiff er vor sich hin und plante, wie er mit den schönen, dicken Soldaten spielen würde.

Da kam ihm ein anderer Junge entgegen; der trug einen engen hölzernen Käfig. Ein grauer Vogel guckte ängstlich durch das Gitter. "Ach, das ist ja eine Nachtigall!" rief Fritz. "Ja," sagte der Junge ganz stolz, "die habe ich eben gefangen." "Ach Gott, das arme Tier, lass es doch wieder fliegen," bat Fritz, "sieh nur, wie es sich ängstigt." "Das wäre dumm," meinte der Junge "dafür gibt mir der Vogelhändler wenigstens eine Mark."

"Hier," rief Fritz, "ich habe auch eine Mark, gib mir die Nachtigall."

"Meinetwegen," sagte der Junge, sah Fritz lachend an, nahm die Mark und ging.

Da stand nun unser kleiner Fritz mit seinem Käfig, und plötzlich dachte er betrübt an die schönen Soldaten. Aber der kleine Vogel sah ihn mit so bittenden Augen an, dass er rasch die Tür aufmachte. Und als die Nachtigall nun aus ihrem Gefängnis verschwand, da war es unserm kleinen Schusterjungen, als hörte er aus weiter Ferne eine Glocke klingen, viel schöner und zarter als andre Glocken; das machte ihn zehr selig. Schnell warf er den Käfig in den Busch und lief nach Hause.

b. 1. Inflect in the singular: der kleinen Stadt; den schönen, dicken Soldaten; unserm kleinen Schusterjungen.

2. Give the principal parts and the third person singular present indicative active of the following verb forms: musste, behalten; pfiff . . . hun; kam . . . entgegen; gefangen; lass; dachte; warf; lief.

3. Give, with the definite article, the nominative singular, genitive singular, and the nominative plural of the following nouns: Dorfe; Jahr; Herz; Wald; Tier; Glocken.

(4) SPANISH. (2 HOURS.)

a. Translate into English:

Vivía muy lejos de aquí, y hace mucho tiempo, una Reina anciana, que era viuda desde hacía muchos años, y que tenía una hija hermosísima.

Cuando ésta llegó a los diez años, la prometieron a un Príncipe de un país muy lejano.

Llegada la época en que debían celebrarse las bodas, y cuando la joven se disponía a marchar a lejanas tierras, la buena anciana llenó sus baúles de objetos preciosos de oro y de plata, de copas y de joyas; en fin, de todo lo que convenía para un regio dote porque amaba a su hija de todo corazón.

También le dió una doncella que debía acompañarla hasta entregarla en manos del que había de ser su esposo.

A cada una le dieron un caballo para el viaje; pero elde la Princesa tenía un mérito muy grande, y es que sabía hablar. Respondía al nombre de Alazor.

Llegada la hora de la despedida, la anciana madre entró en su dormitorio, y cogiendo un cortaplumas, se hirió en un dedo, que sangró; luego dejó caer tres gotas sobre un pedacito de lienzo blanco, y dándoselo a la hija, le dijo:

—Hija mía, guarda bien ese recuerdo; te hará falta en el camino.

Se despidieron derramando lágrimas; el lienzo se le metió la Princesa en el pecho, se subió al caballo, y se marchó.

b. Translate into Spanish:

(1) In this season the nights are as long as the days. (2) Those boys said they had to close these windows, because it was too cold. (3) I don't know whose pen this is. It is yours, isn't it? No, it isn't mine. (4) My mother wants me to learn to play the piano. (5) He was afraid that we might not bring our books. (6) Bring (formal sing.) them (fem.) to me. I want to see them. (7) I should be glad to give it to you, if I had it. (8) He has been living here for two months now. (9) I breakfasted yesterday morning at half past eight or a quarter to nine. (10) It is said that the cathedral was built by the Moors in the thirteenth century.

(5) PHYSICS. (3 HOURS.)

PART I.

(*Answer all questions in this part.*)

1. (*a*) State Newton's Laws of Motion.
   (*b*) Give an illustration of each of two of these laws.
2. (*a*) State Boyle's Law.
   (*b*) Describe an experimental method of demonstrating the facts stated in Boyle's Law.
3. A piano weighing 720 pounds was hoisted to a height of 60 feet by means of a movable block having two pulleys and a fixed block having three pulleys.
   (*a*) Represent by a diagram the system of pulleys.
   (*b*) What is the mechanical advantage of the system of pulleys?
   (*c*) If the efficiency of the system was 45 per cent, how many foot-pounds of work were done by the men in this operation?
4. (*a*) Define temperature, specific heat, heat of fusion, mechanical equivalent of heat.
   (*b*) Give an example of the cooling effect of evaporation.
   (*c*) How much heat would be required to change 100 grams of ice at 0° C. into steam at 100° C.?
5. A cell of internal resistance 0.05 ohm and electromotive force 1.5 volts is connected with three resistances of 12 ohms each. Calculate the current flowing through the circuit:
   (*a*) When the three resistances are connected in parallel.
   (*b*) When the three resistances are connected in series.
6. (*a*) On what does the pitch of a sound depend?
   (*b*) Describe an experiment which proves your answer to (*a*).
   (*c*) In what ways, exclusive of duration, may two sounds of the same pitch differ from each other?
7. A child 3 feet tall was photographed while standing 8 feet in front of a camera having a lens with a focal length of 6 inches.
   (*a*) How many inches from the lens was the photographic plate?
   (*b*) How many inches high was the photograph of the child?

PART II.

(*Answer three questions from this part and no more.*)

8. A piece of stone having a specific gravity of 2.6 weighs 480 grams when immersed in water. Find—
   (*a*) Its weight in air,
   (*b*) Its volume.
9. (*a*) A weight of 100 pounds is supported at the junction of two wires, each of which makes an angle of 45° with the vertical. What is the tension in each wire?
   (*b*) How would the tension change if the angle between the wires were decreased?

10. Name the essential parts for each of three different systems commonly employed for heating houses, and state the physical principles applied in each case which render it effective.
11. Make a careful sketch of a telephone transmitter and a receiver, including battery and connections, and explain the action of each instrument.
12. A current of 3 amperes at 1,000 volts is sent through the primary coil of a transformer having an efficiency of 97 per cent. How many 110-volt lamps can be lighted when connected to the secondary coil of the transformer if each lamp requires a current of 0.2 ampere?
13. A standard tuning fork of frequency 256 gives 4 beats per second when sounded with another fork. When a piece of wax is attached to the standard fork the number of beats is reduced to 3 per second. What is the frequency of the other fork?
14. In making photographic prints it is found that a certain negative yields good results if held for 20 seconds at a distance of 8 inches from a 16 candlepower lamp. What length of exposure would be required if the negative were held at a distance of 16 inches from a 64 candlepower lamp?
15. (*a*) Explain clearly what is meant by the expression "the index of refraction of water is 1.33."
    (*b*) Is the index of refraction the same for "red light" as for "green light"? Give reason for your answer.

(6) CHEMISTRY. (3 HOURS.)

Answer ten questions as indicated below.
Number and letter your answers to correspond to the questions selected.

PART I.

(*Answer all questions in Part I.*)

1. Indicate in words or by writing an equation a reaction that will illustrate the characteristic behavior of each of the following: (a) an oxidizing agent, (*b*) a reducing agent, (*c*) a catalytic agent, (*d*) a dehydrating agent. Designate, in each case, the substance whose characteristic behavior is illustrated.
2. Write equations for the following reactions, using formulas throughout. Equations must be properly balanced to receive credit.
   (*a*) Steam passed over heated carbon=
   (*b*) Solutions of ferric chloride and lead nitrate=
   (*c*) Zinc oxide and hydrochloric acid=
   (*d*) Manganese dioxide, sodium chloride, and concentrated sulphuric acid=
   (*e*) Nitric acid and copper=
3. A sample of crystallized sodium sulphate ($Na_2SO_4 \cdot XH_2O$) weighing 6.7 grams was completely dehydrated. The residue was found to weigh 3.55 grams. Calculate the number of molecules of water in one formula weight of crystallized sodium sulphate.
   (Atomic weights: S 32, Na 23, O 16, H 1.)
4. (*a*) List the following elements in the order of their activity: copper, hydrogen, iron, silver, zinc. State (1) which will dissolve in dilute sulphuric acid liberating hydrogen; (2) which will copper displace from solution; (3) which will iron displace from solution.
   (*b*) Describe the properties and uses of hydrogen sulphide and write equations showing how it would react with solutions of two different metallic salts.
5. (*a*) In terms of the ionic theory, state what a water solution of sodium sulphate contains.
   (*b*) Write the ionic equation representing the neutralization of potassium hydroxide by sulphuric acid.

PART II.

(Answer five questions from Part II, and no more.)

6. (*a*) Suppose oxygen to be mixed with an excess of hydrogen, how could they be made to combine?
   (*b*) State two reasons for believing that a chemical reaction has taken place.
   (*c*) What experiment would show that no free oxygen is present after the reaction?
7. Name three different metals which are prepared commercially, one from its sulphide, a second from its oxide, and a third by an electrolytic method. Outline briefly the process in any two cases.
8. (*a*) Mention the allotropic forms of two elements.
   (*b*) For each element give a method by which one allotropic form may be converted into another.
   (*c*) Show by an example how two allotropic forms of a given element may differ chemically.
9. Tell briefly about the composition of each of the following: (*a*) soap, (*b*) steel, (*c*) water gas, (*d*) glass, (*e*) brass.
10. One gram of magnesium, reacting with hydrochloric acid, liberates 933 c. c. of hydrogen, measured dry at 0° C. and 760 mm. Calculate the equivalent (combining weight) of magnesium. (One liter of dry hydrogen at 0° C. and 760 mm. weighs 0.09 gram.)
11. A beaker contains a solution of the nitrates of silver, copper, iron, barium, and sodium. Explain how you could detect the presence of each metallic element. Write equations that will illustrate two of the reactions involved.
12. Choose from the following list the substances that will react with water at room temperature and give the formulas of the substances formed: Potassium, sodium chloride, gold, calcium carbide, ammonia gas, phosphorous pentoxide.
13. (*a*) Name a solid which is soluble in water, whose solution gives a precipitate with both hydrochloric and sulphuric acid, and which on heating evolves a brown gas.
    (*b*) Name a solid which is white, gives a violet light when held in the Bunsen flame, and a violet vapor when it is heated with a mixture of manganese dioxide and sulphuric acid.
14. What disadvantages are there in the following situations, and what are the fundamental reasons for these disadvantages?
    (*a*) Peat as a fuel.
    (*b*) Kerosene in the carburetor of an automobile.
    (*c*) Sea water in a lead storage battery in a submarine.
    (*d*) Inadequate ventilation in coal mines.
15. (*a*) Name two common calcium minerals.
    (*b*) What substances are used in making (1) lime, (2) plaster of Paris, (3) fertilizers, (4) bleaching powder?
    (*c*) What geologic changes in limestone regions may result from the action of ground water containing carbon dioxide?

(7) GENERAL SCIENCE. (3 HOURS.)

1. (*a*) Discuss briefly the solar system.
   (*b*) Distinguish between planets and fixed stars as regards: (1) Distance from the sun; (2) size; (3) temperature.
   (*c*) What is the source of the heat which keeps the human body above the temperature of the surroundings? Explain how perspiration keeps the body from becoming overheated.

2. (*a*) What is the cause of a rainbow?
   (*b*) State the natural conditions under which a rainbow may be seen.
   (*c*) Distinguish between a tornado and a cyclone.
   (*d*) How does a plant get its nourishment?
3. (*a*) Describe the natural conditions which cause rain, hail, snow.
   (*b*) Explain the cause of the seasons of the year.
   (*c*) What are bacteria?
   (*d*) How are harmful bacteria guarded against?
4. (*a*) What causes the tides?
   (*b*) What are the monsoons; trade winds; ocean currents?
   (*c*) Name some metals which oxidize readily at ordinary temperatures and some which do not.
   (*d*) What element is present in greatest quantity on the earth? Of what is the air composed?
5. (*a*) Discuss the forces of nature which tend to wear down mountains.
   (*b*) What are glaciers; geysers; volcanoes?
   (*c*) Explain the action of a thermos bottle in keeping a substance warm which is contained in it.
   (*d*) Explain the action of a cream separator.

(8) GENERAL INFORMATION. (2 HOURS.)

1. (*a*) Name 10 members of the League of Nations.
   (*b*) Where is the headquarters of the League of Nations?
   (*c*) Where was the peace treaty with Germany signed?
2. (*a*) What is the Electoral College, and how is the membership from each State apportioned?
   (*b*) What is the House of Representatives, and how is the membership from each State apportioned?
3. Name the members of the President's Cabinet, and specify which office each holds in the Cabinet.
4. Tell briefly who the following men are: (*a*) Lloyd-George; (*b*) Samuel Gompers; (*c*) Calvin Coolidge; (*d*) Robert Lansing; (*e*) Edward M. House; (*f*) James Balfour; (*g*) A. S. Burleson; (*h*) Josephus Daniels; (*i*) Henry Ford; (*j*) H. C. Hoover.
5. Name the author of each of the following books: (*a*) Oliver Twist; (*b*) Les Miserables; (*c*) The Four Horsemen of the Apocalypse; (*d*) Tom Sawyer; (*e*) Around the World in Eighty Days; (*f*) Up from Slavery; (*g*) The Sketch Book; (*h*) The Last of the Mohicans; (*i*) Ivanhoe; (*j*) The Scarlet Letter.
6. Name four nations that have become independent or have been created as a result of the World War and its attendant political upheavals.

24. The following are given as samples of the competitive examination:

(1) ENGLISH. (3 HOURS.)

PART I. (25 POINTS.)

1. Parse the words in italics in the following sentence:

There *is nothing* that *more betrays* a *base*, ungenerous spirit, *than* the *giving* of secret stabs to a *man's* reputation. Hence I am *much troubled when* I see the talents of humor and ridicule *in* the possession of an *ill-natured* man.

2. Write a compex sentence containing an adverbial clause of purpose.

Write a sentence containing an adjective clause.

Write a sentence containing a verb in the passive voice.

Write a sentence containing a noun (or substantive) clause used as the subject of the sentence.

Write a simple sentence containing an intransitive verb.

3. Rewrite the following sentences, correcting all errors:

The sniper shot at him and I, but we were both used to these kind of experiences.

The dogs were laying close by the fire, just where they were laid when we first seen them.

I don't know who you was talking about when I came in, but none were smiling.

I told him that he hadn't ought to have done it, and that neither Jim or I are to be held responsible.

Part II. (25 Points.)

4. Tell briefly the most important facts about the life and works of any *one* of the following authors: Geoffrey Chaucer, John Milton, Oliver Goldsmith, Joseph Addison, Thomas Macauley, Ralph Waldo Emerson, Alfred Tennyson, Edgar Allen Poe.

5. In a play of Shakespeare with which you are familiar choose some moment of importance to the hero. Tell why, at this moment, the hero acts as he does.

6. (*a*) Name two English poets and three English prose writers of the XIXth Century (other than any that may be mentioned in question 4), and name a work of each.
   (*b*) Name five prominent American authors and one of the works of each.

Part III. (50 Points.)

7. Write a composition of about 400 words on one of the following topics. Choose such aspects of the subject as you can well discuss according to an orderly, consecutive plan, in which each pargraph shall be one stage.

(*a*) My ideal of an officer.
(*b*) Latin: a luxury or a necessity to the student of English?
(*c*) Advantages or disadvatnages of Government operation of the railroads.
(*d*) A character in the recent history of the United States.
(*e*) The absurdities of English spelling.
(*f*) The Boy Scouts.
(*g*) My favorite newspaper.
(*h*) What can women do in politics?
(*i*) The new map of Europe.

(2) MATHEMATICS. (3 HOURS.)

1. Simply

$$\frac{1}{ax}\left(\frac{a}{x}-\frac{x}{a}\right)\div\frac{a^3-x^3}{a^3x^3},$$

2. Solve the following simultaneous equations, writing the results so that corresponding values are paired:

$$x^2+xy+2y^2=44$$
$$2x^2-xy+y^2=16$$

3. A party of boys bought a canoe for $70, dividing the expense equally. If the number of boys had been two less, the expense per person would have been increased by $1.75. How many boys were there in the party?

4. Solve the following equation, and check the results:

$$\sqrt{2X+3}-\sqrt{4X-1}-\sqrt{6X-2}=0$$

5. Find the sum of all positive integers less than 200 which are divisible by neither 3 nor 7.

6. Without proof, show how to carry out the following construction:
   (*a*) To construct a tangent to a given circle from a given external point.
   (*b*) Given three lengths, a, b, and c, to construct a length d such that a:b c:d.

7. Prove that if the corresponding sides of two triangles are proportional, the two triangles are similar.

8. Given a circle of radius 10 inches, having the diameters AB and CD perpendicular to each other. With A as center and AC as radius a second circle is drawn. Find to the nearest tenth of a square inch the area common to both circles.

9. The radius of a sphere is 10 inches. Find the dimensions of a cube whose surface area is equal to the surface area of the sphere.

(3) HISTORY. (3 HOURS.)

Candidates must answer the questions in two of the five divisions of history, except that they may not choose II and III only, as follows:

Division I: Ancient History.

Group I. (*Required.*)

1. Give the important facts in the lives of *two* of the following persons, selecting one from group (*a*) and one from group (*b*), and particularly show how the life of each affected his times: (*a*) Alexander, Aristotle, Themistocles; (*b*) Sulla, Emperor Claudius, Justinian.

Group II. (Answer *one* question.)

2. Give an account of the invasion of Greece by Xerxes. Why were its results of great importance?
3. When and in what ways did the early Greeks come into contact with the Egyptians? Explain the Egyptian influence in two fields of Greek culture.
4. Give an account of the commerce and the colonization of the Phoenicians, and state what contributions the Phoenicians made to civilization.

Group III. (Answer *one* question.)

5. Give an account of the formation and organization of the Delian Confederacy and of its transformation into the Athenian Maritime Empire.
6. What were the institutions or other influences that tended to keep alive a national spirit among the Greeks? Why did the Greeks fail to secure political unity?
7 Name one Greek epic poet, one dramatist, and one historian, and describe briefly the nature and subject matter of one work by each.

Group IV. (Answer *one* question.)

8. Compare the main features of Greek and of Roman architecture. (Illustrate by drawings if you wish.) Include in your answer a description of one Greek and one Roman building.
9. Give an account of the Roman Civil Wars between 49 and 31 B. C.
10. Make a list of, but do not explain, the causes of the downfall of the Roman Empire. Discuss two of the causes as fully as possible, showing clearly how each tended to cause the downfall of the Empire.

Group V. (*Required.*)

11. Write brief notes identifying *five* of the following topics: Rameses II, Behistun Rock, Lysander, Pindar, Lares, Gaiseric, *fasces*, catacombs phalanx.

Division II: Medieval and Modern European History.

Group I. (*Required.*)

12. Give the important facts in the life of *one* of the following persons and show clearly how his life affected his times: Frederick Barbarossa, Joan of Arc, Savonarola, Emperor Charles V, Peter the Great, Kaiser William II.

Group II. (Answer *one* question.)

13. Name in chronological order *five* of the tribes which invaded the Roman Empire. Tell the story of one of the invasions.
14. How did Mohammed influence the political and religious conditions which he found in Arabia? What are the principal Mohammedan areas in the world to-day and how do they compare in civilization with the Christian areas?
15. What services were performed by monastic orders in the Middle Ages? On what grounds were these orders attacked in twentieth-century France?

Group III. (Answer *one* question.)

16. What were the conditions in Europe which gave rise to feudalism? What is meant by "royal domain," "feudal aids," "immunity," and "homage"?
17. Describe two kinds of medieval guilds, their membership, regulations, and political power. When and why did the guilds decline?
18. What contributions to culture and civilization have been made by *five* of the following persons: Roger Bacon, Copernicus, Leonardo da Vinci, Petrarch, Rousseau, Marx, Pasteur, Madame Curie, Beethoven, Erasmus?

Group IV. (Answer *one* question.)

19. Trace the growth of the royal power in France from the accession of Henry IV to the death of Louis XIV.
20. What European countries have been chiefly interested in the political control of Africa since 1815? What parts of Africa has each sought to control and for what reasons?
21. State briefly the main steps in the struggle for national unity in Germany in the nineteenth century. In what ways did the results of the struggle become causes of the World War in 1914?

Group V. (*Required.*)

22. Write brief notes identifying *five* of the following topics: Golden Bull, villein, Spanish Armada, Edict of Nantes, Silesia, Jesuits, Dupleix, Pan-Slavism, *Cahiers*, Nihilists.

Division III: Modern European History.

Group I. (*Required.*)

23. Give the important facts in the life of *one* of the following persons and show clearly how his life affected his times: Peter the Great, Louis XIV, Napoleon III, Kaiser William II.

Group II. (Answer *one* question.)

24. Narrate the main events in Polish history since 1683.
25. Explain and criticize the work of the Congress of Vienna.
26. State briefly the main steps in the struggle for national unity in Germany in the nineteenth century. In what ways did the results of the struggle become causes of the World War in 1914?

Group III. (Answer *one* question.)

27. Tell the story of the struggle for India till 1763.
28. What part has been played by *two* of the following regions in the political rivalries of modern nations: Egypt, Mesopotamia, Morocco, the Kongo Basin? Explain plainly the political and economic importance of the two regions which you discuss.
29. What territories have come under Japanese possession or control since 1894? State the circumstances in each case.

Group IV. (Answer *one* question.)

30. Name *three* of the great English inventions which have contributed to the industrial development of England since 1750, and explain the contribution made by each.
31. State the contributions to civilization made by *five* of the following persons: Madame Curie, Bunsen, Wilberforce, Marconi, Pasteur, Beethoven, Corot, Tolstoi, Nansen.
32. What changes did the French Revolution or Napoleon accomplish with respect to *five* of the following topics: (*a*) Landholding, (*b*) taxation, (*c*) the church, (*d*) guilds, (*e*) regulation of commerce, (*f*) spirit of nationalism, (*g*) militarism?

Group V. (*Required.*)

33. Write brief notes identifying *eight* of the following topics: *Cahiers*, Reform Bill of 1832, *mir*, Argonne, Retreat from Moscow, Campo Formio, Dreyfus, Mazzini, Mandate, Nihilists, Bosnia.

Division IV: English History.

Group I. (*Required.*)

34. Give the important facts in the life of *one* of the following persons and show clearly how his life affected his times: Thomas à Becket, Henry VII, Francis Drake, Oliver Cromwell, the younger Pitt.

Group II. (Answer *one* question.)

35. Tell the story of the conversion of the English to Christianity and of the controversy that arose between the Celtic church and the Roman church. How, when, and where was this controversy settled for England? What were the important results of the settlement?
36. Name, with date, three documents which have contributed materially to English liberty and explain one constitutional principle contained in each.
37. Trace the development of the organization and powers of Parliament to the reign of Henry IV.

Group III. (Answer *one* question.)

38. Give an account of the relations between England and Scotland from the accession of Henry VII to the time of Queen Anne.
39. Beginning with the Act of Union, discuss the Irish question as regards (*a*) the Land Question, (*b*) Home Rule.
40. Give an account of foreign affairs in the reign of Elizabeth.

Group IV. (Answer *one* question.)

41. Explain fully why England took part in *two* of the following wars: the war against France in 1702, the war against France in 1793, the war against Germany in 1914.
42. What was the main aim of Englishmen in India in the seventeenth century? How and when did the British Government acquire political control over India? What are some of the main difficulties in the British government of India at present?
43. What influences helped to transform England into a democracy in the nineteenth and twentieth centuries?

Group V. (*Required.*)

44. Write brief notes identifying *eight* of the following topics: Bayeux Tapestry, Curia Regis, Exchequer, three-field system, Irish Pale, Act of Supremacy, John Knox, Bloody Assizes, Christopher Wren, Khartoum, Liberal, Unionist.

DIVISION V: AMERICAN HISTORY.

Group I. (*Required.*)

45. Give the important facts in the life of *one* of the following persons and show clearly how his life affected his times: Benjamin Franklin, Andrew Jackson, Woodrow Wilson.

Group II. (Answer *one* question.)

46. Give an account of three attempts at political union among the Colonies prior to the adoption of the Constitution of the United States.
47. By what means was money secured to carry on the Revolutionary War? How did Hamilton later propose to meet these financial obligations?
48. Explain the origin, provisions, and importance of the Compromise of 1820. By what Supreme Court decision was this compromise declared unconstitutional?

Group III. (Answer *one* question.)

49. Name three American inventions made before 1860, and show how each affected the economic life and the geographical distribution of the people.
50. How has the character of immigration changed since the Civil War? How has the American attitude toward immigration changed, and why?
51. Give an account of the presidential election in 1920 as to principal parties, their candidates, chief issues, and results.

Group IV. (*Required.*)

52. Write brief notes identifying *seven* of the following topics: De Soto, Acadia, Iroquois, Carl Schurz, George Rogers Clark, McCulloch *v.* Maryland, John C. Frémont, Cyrus Field, Chancellorsville, Liberal Republicans.

Group V. (*Required.*)

53. Indicate briefly for what phase of history or historical study *five* of the following sources or writers are valuable: Bradford's *History*, Dickinson's *Farmer's Letters*, *The Federalist*, *Jesuit Relations*, *The Winning of the West*, Henry Adams, Alexis DeTocqueville, F. L. Olmstead, Harriet Beecher Stowe, Nicolay and Hay, James Bryce, Francis Parkman, James F. Rhodes.

DIVISION VI: AMERICAN HISTORY AND CIVIL GOVERNMENT.

The questions in Division VI are the same as in Division V except that the following is to be substituted for Group V:

Group V. (Answer *one* question.)

54. Explain two methods of amending the Constitution of the United States. Give the main provisions of the last three amendments.
55. What provisions does the Constitution make directly or indirectly in regard to *three* of the following subjects: Declaration of war, establishment of peace, control of railway rates, issue of currency, impeachment?

PAY OF CADETS.

25. A cadet of the line and a cadet engineer shall receive the same pay and allowances as are now or may hereafter be provided by law for midshipmen in the Navy, which at present are $780 per annum and commutation for one ration per day. Pay commences upon the date of acceptance of appointment.

26. Upon reporting at the academy, consequent upon having been appointed to a cadetship, each cadet of the line and cadet engineer shall deposit with the superintendent the sum of $150, to be applied toward defraying the cost of his first outfit of uniforms and equipment and of his textbooks and for other necessary expenses. No exception to this rule will be permitted, and the deposit must be made before the candidate can be received into the academy: *Provided, however*, That a cadet may use so much of this $150 as may be necessary to defray his traveling expenses, under orders, to the academy, the amount thus used to be deposited with the superintendent when the cadet shall have been paid his mileage.

27. The greater portion of a cadet's pay will be required to defray his expenses during his cadetship and for deposits that he will be required to make toward a fund, which, upon his graduation, will be available to be applied toward the cost of the outfit required for a commissioned officer.

28. No cadet may contract any debt or receive any financial assistance from home or elsewhere without the permission of the superintendent of the academy. The pay of a cadet is sufficient for his support.

COURSE OF INSTRUCTION.

29. Cadets of the line and cadet engineers undergo a course of training for three years at the Coast Guard Academy at New London, Conn. The course of instruction includes the following subjects, which may be changed at the discretion of the department:

CADETS OF THE LINE.

FIRST YEAR—THIRD CLASS.

FIRST TERM.	SECOND TERM.
English.	English.
French.	French.
Trigonometry.	Algebra.
Astronomy.	Calculus.
Seamanship.	Navigation.
Drills.	Seamanship.
Mechanical drawing.	Drills.
Free-hand drawing.	Mechanical drawing.
Physics.	Physics.
Physical culture.	Physical culture.
	Shop practice.

SECOND YEAR—SECOND CLASS.

FIRST TERM.	SECOND TERM.
English.	English.
French.	French.
Calculus.	Calculus.
Mechanics.	Mechanics.
Navigation.	Navigation.
Seamanship.	Seamanship.
Electricity.	Electricity.
Chemistry.	Chemistry.
Drills.	Drills.
Descriptive geometry.	Mechanical drawing.
Physical culture.	Ordnance.
	Physical culture.

THIRD YEAR—FIRST CLASS.

FIRST TERM.

English.
French.
Compass compensation.
Seamanship.
Radio.
Ordnance.
Gunnery.
Naval construction.
Navigation law.
Hygiene.
Drills and tactics.
Marine engineering.
Mechanical drawing.
Physical culture.

SECOND TERM.

English.
French.
Marine surveying.
Seamanship.
Radio.
Ordnance.
Gunnery.
Service regulations and military law.
Navigation law.
Hygiene.
Drills and tactics.
Marine engineering.
Mechanical drawing.
Physical culture.
International law.

CADET ENGINEERS.

FIRST YEAR—THIRD CLASS.

FIRST TERM.

English.
French.
Trigonometry.
Drills.
Mechanical drawing.
Free-hand drawing.
Heat engines, elementary.
Physics.
Physical culture.

SECOND TERM.

English.
French.
Algebra.
Calculus.
Drills.
Descriptive geometry.
Mechanical drawing.
Shop practice.
Physics.
Physical culture.

SECOND YEAR—SECOND CLASS.

FIRST TERM.

English.
Calculus.
Mechanics.
Thermodynamics.
Electrical engineering.
Chemistry.
Naval architecture.
Drills.
Shop practice.
Machine design.
Engineering materials.
Physical culture.

SECOND TERM.

English.
Calculus.
Mechanics.
Electrical engineering.
Chemistry.
Drills.
Marine boilers.
Shop practice.
Engineering materials.
Physical culture.

THIRD YEAR—FIRST CLASS.

FIRST TERM.

Radio engineering.
Hygiene.
Drills.
Marine engines.
Ship resistance and propulsion.
Hydro mechanics.
Mechanical laboratory.
Boiler laboratory.
Physical culture.

SECOND TERM.

Surveying.
Electrical laboratory.
Service regulations.
Military law.
Hygiene.
Drills.
Organization and management.
Steam turbines.
Internal combustion engines.
Electric and mechanical reduction machinery.
Physical culture.

Besides theoretical instruction in the subjects listed above, practical work and instruction, where the nature of the subject permits, is given to the fullest extent practicable.

DRILLS AND EXERCISES.

30. Setting-up exercises and physical drill with rifles: Infantry drill, school of the squad, section, and company, manual of guard duty; Artillery drill, school of the section, bayonet exercises, cutlass and pistol drill, fencing, dancing, gymnasium and athletic exercises, boats under oars and sails, handling and running power launches, rapid-fire gun drill and target practice, small-arms target practice, breeches-buoy rescue drill.

PRACTICE CRUISE.

31. Such part of the sea term (June 1 to October 14) as may be directed is spent on a practice cruise on the practice cutter. Cadets will be given practical instruction, in so far as opportunity permits, in all matters relating to seamanship, navigation, steam engineering, gunnery, signaling, and radiotelegraphy. They may be required to perform all the duties of a seaman except cleaning ship, and all the duties pertaining to the engineroom and fireroom.

PROMOTION.

32. Upon the successful completion of the course, cadets are commissioned by the President to fill vacancies in the grade of ensign in the Coast Guard and cadet engineers are commissioned by the President to fill vacancies in the grade of ensign (engineering) in the Coast Guard and have rank corresponding to that of second lieutenants in the Army and ensigns in the Navy. The base pay of an ensign is $1,500 per annum. Promotions are made by seniority through successive grades up to and including captain, in which

grade an officer has the rank, pay, and allowances corresponding to those of a colonel in the Army and a captain in the Navy. An ensign and an ensign (engineering), if not previously promoted by occurring vacancies, is, at the end of three years' service in his grade, advanced to the grade of lieutenant (j. g.) upon passing the required examination for promotion. Commissioned officers are entitled to 5 per cent increase in pay for each three years of service, not exceeding 50 per cent in all, with certain limitations above the grade of lieutenant. Officers below the rank of lieutenant commander receive increase in compensation the same as line officers of the Navy of the same length of commissioned service.

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END OF
TITLE